



# Renseignements détaillés

## Transforming garbage into gold: development of experimental tools to study nutritional dynamics of black soldier fly larvae (*Hermetia illuscens* Linnaeus 1758).

### Détails de la recherche

<b>Année de concours :</b>	2018	<b>Année financière :</b>	2020-2021
<b>Nom de la personne :</b>	Vandenberg, Grant	<b>Institution :</b>	Université Laval
<b>Département :</b>	Sciences animales	<b>Province :</b>	Québec
<b>Montant :</b>	33 000,00	<b>Versement :</b>	3 - 5
<b>Type de programme :</b>	Programme de subventions à la découverte - individuelles	<b>Comité évaluateur :</b>	Systèmes et fonctions biologiques
<b>Sujet de recherche :</b>	Nutrition et élevage des animaux	<b>Domaine d'application :</b>	Production animale et produits animaux primaires
<b>Chercheurs associés :</b>	Aucun associé	<b>Partenaires :</b>	Aucun partenaire

### Sommaire du projet

A growing body of evidence has demonstrated the ability of insects to transform relatively low-value waste streams into valuable animal feed ingredients. The concept is simple: rather than recycling organic wastes into compost or methane, insect larvae consume organic waste and convert (or upcycle) organic waste into nutritious feed ingredients. The culture of insects raised specifically as feed for domestic animals/fish, has been evaluated for several decades. Insect larvae are typically rich in protein and can be an important source of lipids, depending on the species, rendering them excellent candidates for the bioconversion of waste materials. However, the widespread adoption and/or commercialization of such approaches has been limited, largely due to artisanal efforts, often in developing nations, with limited integration or coordinated development. Currently however, a convergence of factors has renewed interest in this area, including a number of large-scale commercial ventures around the world. A combination of new regulations in many municipalities restricting the disposal of organic wastes to landfills, together with the need to find sustainable ingredients for animal feeds has brought a renewed interest to re-evaluate the opportunities for insects to convert waste organics into valuable feed resources. The impact of larval feedstock characteristics (e.g. nutrient profile, chemical composition) to affect the subsequent feeding value of the larvae provides the opportunity to develop innovative products for the animal feed industry. For many decades, animal nutrition research has benefited greatly by the development and implementation of tools and standardized experimental approaches, which are required to systematically carry out nutrient requirement research, evaluate feed ingredients as potential candidates for dietary inclusion, develop adequate feed formulations to optimise animal production. The need for reliable tools and methodologies has led to the development of a number of experimental approaches to understand the degree by which nutrients are absorbed, either direct or indirect measurement of apparent nutrient digestibility as well as performance indices to gauge animal performance. However, unlike other areas of animal nutrition, there exists no tools and standardized approaches to study nutritional dynamics of insect larvae. The application of parallel concepts for insect larvae will greatly advance fundamental and applied studies relating to nutritional dynamics across different species and life stages.